Using Jupiter's Synchrotrons Radiation as a Probe into Jupiter's Inner Radiation Belts.

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The Jovian decimetric emission is caused by the combined emission of synchrotrons radiation originating from the relativistic electrons trapped in Jupiter's "Van Allen radiation belts" and thermal emission from the planet's atmosphere, The study of the synchrotrons radiation characteristics and variations has provided insight into the physical properties of Jupiter's inner radiation belts. These characteristics include a long term intensity variation (years), an intensity "beaming" modulation over a Jovian rotation period, linear and circular polarization, and a spatial distribution which implies a multi-component electron pitch angle distribu tion. How these characteristics affect our understanding of Jupiter's radiation belts will be discussed with specific attention given to the process of pitch angle scattering as implied by the spatial distribution of the synchrotrons radiation. A report on the observed changes in the synchrotrons radiation as a result of the impacts of comet Shoemaker-Levy/9 with Jupiter and possible interpretations will also be given.